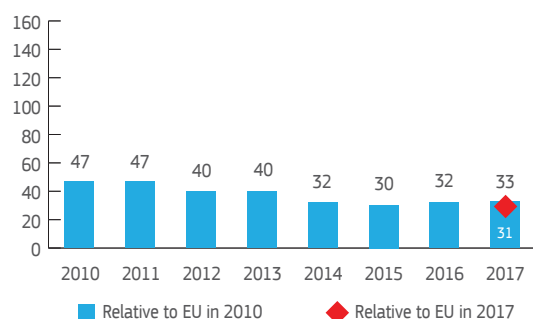




**Romania is a Modest Innovator.** Over time, performance has declined relative to that of the EU in 2010.



Innovation-friendly environment and Sales impacts are the strongest innovation dimensions. Innovators and Firm investments are the weakest innovation dimensions.

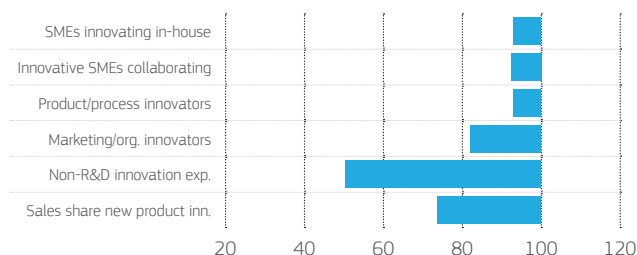
| Romania                                      | Performance relative to EU 2010 in |       | Relative to EU 2017 in |
|--|------------------------------------|-------|------------------------|
|  | 2010                               | 2017  | 2017                   |
| SUMMARY INNOVATION INDEX                     | 46.8                               | 32.8  | 31.1                   |
| Human resources                              | 40.7                               | 22.5  | 18.8                   |
| New doctorate graduates                      | 100.0                              | 49.9  | 35.8                   |
| Population with tertiary education           | 11.9                               | 13.4  | 11.8                   |
| Lifelong learning                            | 3.1                                | 0.0   | 0.0                    |
| Attractive research systems                  | 22.8                               | 29.7  | 26.1                   |
| International scientific co-publications     | 22.7                               | 46.8  | 28.8                   |
| Most cited publications                      | 30.2                               | 35.6  | 34.3                   |
| Foreign doctorate students                   | 12.3                               | 15.3  | 13.8                   |
| Innovation-friendly environment              | 81.1                               | 96.8  | 72.3                   |
| Broadband penetration                        | 122.2                              | 188.9 | 106.3                  |
| Opportunity-driven entrepreneurship          | 56.7                               | 42.2  | 39.1                   |
| Finance and support                          | 48.3                               | 22.4  | 20.8                   |
| R&D expenditure in the public sector         | 27.4                               | 9.7   | 10.1                   |
| Venture capital expenditures                 | 75.1                               | 38.6  | 31.6                   |
| Firm investments                             | 64.9                               | 13.3  | 11.9                   |
| R&D expenditure in the business sector       | 11.8                               | 19.6  | 17.6                   |
| Non-R&D innovation expenditures              | 209.4                              | 21.3  | 19.5                   |
| Enterprises providing ICT training           | 0.0                                | 0.0   | 0.0                    |
| Innovators                                   | 39.1                               | 0.0   | 0.0                    |
| SMEs product/process innovations             | 26.4                               | 0.0   | 0.0                    |
| SMEs marketing/organisational innovations    | 52.0                               | 0.0   | 0.0                    |
| SMEs innovating in-house                     | 38.0                               | 0.0   | 0.0                    |
| Linkages                                     | 53.7                               | 38.1  | 37.7                   |
| Innovative SMEs collaborating with others    | 10.7                               | 5.8   | 5.8                    |
| Public-private co-publications               | 46.2                               | 30.4  | 30.1                   |
| Private co-funding of public R&D exp.        | 105.3                              | 79.1  | 78.0                   |
| Intellectual assets                          | 8.6                                | 22.5  | 22.3                   |
| PCT patent applications                      | 4.2                                | 5.9   | 6.1                    |
| Trademark applications                       | 14.3                               | 35.4  | 31.3                   |
| Design applications                          | 8.4                                | 28.4  | 29.4                   |
| Employment impacts                           | 18.8                               | 34.7  | 34.6                   |
| Employment in knowledge-intensive activities | 3.9                                | 26.0  | 23.5                   |
| Employment fast-growing enterprises          | 29.5                               | 41.0  | 43.8                   |
| Sales impacts                                | 83.4                               | 66.6  | 64.0                   |
| Medium and high tech product exports         | 90.1                               | 103.4 | 97.7                   |
| Knowledge-intensive services exports         | 48.8                               | 57.9  | 55.2                   |
| Sales of new-to-market/firm innovations      | 115.9                              | 33.2  | 32.9                   |

Dark green: normalised performance above 120% of EU; light green: normalised performance between 90% and 120% of EU, yellow: normalised performance between 50% and 90% of EU, orange: normalised performance below 50% of EU. Normalised performance uses the data after a possible imputation of missing data and transformation of the data.

Data in red show a decline in performance compared to 2010.

**Provisional CIS 2016 data** show reduced performance for all six indicators, in particular for Non-R&D innovation expenditures.

Provisional CIS 2016 vs CIS 2014 (=100)



**Structural differences** with the EU are shown in the table below. The value added share of foreign-controlled enterprises is well above the EU average. GDP per capita and the employment shares in services and in knowledge-intensive services are well below the EU average.

|  | RO     | EU     |
|--|--------|--------|
| <b>Performance and structure of the economy</b>              |        |        |
| GDP per capita (PPS)   | 16,200 | 28,600 |
| Average annual GDP growth (%)                                | 5.9    | 2.2    |
| Employment share Manufacturing (NACE C) (%)                  | 18.5   | 15.5   |
| of which High and Medium high-tech (%)                       | 30.0   | 37.2   |
| Employment share Services (NACE G-N) (%)                     | 29.7   | 41.6   |
| of which Knowledge-intensive services (%)                    | 27.4   | 35.0   |
| Turnover share SMEs (%)                                      | 42.4   | 38.0   |
| Turnover share large enterprises (%)                         | 41.6   | 44.4   |
| Foreign-controlled enterprises – share of value added (%)    | 18.1   | 12.5   |
| <b>Business and entrepreneurship</b>                         |        |        |
| Enterprise births (10+ employees) (%)                        | 3.1    | 1.5    |
| Total Entrepreneurial Activity (TEA) (%)                     | 10.8   | 6.6    |
| FDI net inflows (% GDP)                                      | 2.4    | 3.6    |
| Top R&D spending enterprises per 10 mln population           | 0.3    | 19.7   |
| Buyer sophistication (1 to 7 best)                           | 2.8    | 3.7    |
| <b>Governance and policy framework</b>                       |        |        |
| Ease of starting a business (0 to 100 best)                  | 74.3   | 76.9   |
| Basic-school entrepren. education and training (1 to 5 best) | 2.4    | 1.9    |
| Govt. procurement of advanced tech products (1 to 7 best)    | 2.9    | 3.5    |
| Rule of law (-2.5 to 2.5 best)                               | 0.2    | 1.2    |
| <b>Demography</b>  |        |        |
| Population size (millions)                                   | 19.8   | 510.1  |
| Average annual population growth (%)                         | -0.6   | 0.3    |
| Population density (inhabitants/km <sup>2</sup> )            | 85.6   | 117.1  |

#### EU targets for 2020

| Indicator  | 2013 | Latest | Target <sup>1</sup> |
|--|------|--------|---------------------|
| Gross domestic expenditure on R&D (% of GDP)                 | 0.39 | 0.48   | 2.00                |
| Tertiary educational attainment (% of population aged 30-34) | 22.9 | 26.3   | 26.7                |

<sup>1</sup> Sources are provided in the introduction to the country profiles.

#### RIO country report:

<https://rio.jrc.ec.europa.eu/en/country-analysis/Romania>

#### European Semester country report:

<https://ec.europa.eu/info/sites/info/files/2018-european-semester-country-report-romania-en.pdf>